

KIMBERLEY et al
Appl. No. 10/583,115
January 16, 2009

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REMARKS/ARGUMENTS

Claims 17-20 and 22- 32 are in the case. No claim amendments are presented.

I. THE OBVIOUSNESS REJECTIONS

Claims 17-20 and 22-24 and 29-32 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over U.S. patent 5,721,184 to Brinen *et al.* (Brinen) in view of U.S. patent 5,786,291 to Specia *et al.* (Specia). Claim 25 stands rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Brinen in view of U.S. patent 5,075,475 to Canich *et al.* (Canich). Claims 25 and 27 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Brinen in view of U.S. patent 5,064,802 to Stevens. Claims 26-28 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Brinen in view of U.S. patent 5,834,393 to Jacobsen *et al.* (Jacobsen). The rejections are respectfully traversed.

The present invention relates to a process for olefin polymerization in the presence of a supported polymerisation catalyst in a reactor. The process comprises performing the polymerization in a polymerisation reactor in the presence of the supported polymerisation catalyst wherein prior to injection into the reactor the supported polymerisation catalyst in the form of a powder is contacted with an inert hydrocarbon liquid in a quantity sufficient to maintain the catalyst in powder form. The inert hydrocarbon liquid is present in amount up to about 10% of the pore volume of the support.

The present invention thus relates to the contact of a supported polymerization catalyst in powder form with an inert hydrocarbon liquid in a quantity sufficient to

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maintain the catalyst in powder form and wherein the inert hydrocarbon liquid is present in amount up to about 10% of the pore volume of the support. The supported polymerization catalyst is therefore essentially *slightly wetted* with a small amount of the inert hydrocarbon liquid prior to injection into the reactor. As a result, it has been discovered that a reduction in the level of fines associated with the final polymer resins is obtained.

Brinen relates to the preparation of a supported catalyst system wherein a small volume of catalyst component is evenly distributed on a porous support material. The level of fines is reduced in Brinen but this is achieved in a different way to the present invention.

Brinen (col. 5, lines 44-58) describes the volume of the catalyst solution used in relation to the pore volume of the support. Brinen discloses that the total volume of the catalyst solution which is applied at one time to the support is most preferably less than 1.5 times the pore volume of the support. Further, Brinen (col. 5, line 53) discloses that the ratio of catalyst solution to pore volume is more preferably about 1.3:1 to about 1.7:1. However Brinen is referring here to the amount of catalyst solution **used in the preparation of the supported polymerization catalyst** and not to the additional contact with a small solvent prior to injection into the reactor, as required in the present invention.

Example 3 of Brinen referred to in the Action describes a supported polymerization catalyst being further treated with an antistatic agent in toluene. The Action determines the amount of toluene added to the support. In this Example, there is already a large amount of toluene (44 lbs ~ 33157g) present from the catalyst

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preparation, so at the time the solution of the antistatic in toluene is added, the supported catalyst is not in powder form as required by the present claims. Further Example 3 discloses that 160g of the antistatic agent are used in toluene but does not disclose the quantity of toluene used.

On page 3 of the Action, reference is made to the type of solvent used, and it is stated that "it would have been obvious to add to the supported catalyst a solution of antistatic and hexane and since hexane is merely the carrier solvent and it would have been expected the catalyst to work in reducing fines". The position is respectfully traversed.

In Brinen, the reduction in fines observed is due to either (or both) the presence of the antistatic agent or the even distribution of a small volume of catalyst component on the porous support material. The "hexane used as merely the carrier solvent" in the present invention is the reason for the unexpected reduction in fines.

In the present invention, there is no addition of an antistatic agent but merely the slight wetting of the supported catalyst prior to injection into the reactor. The Action asserts that "while the working example (of Brinen) does not show addition of antistatic agent to dried, supported catalyst....." However, even if the toluene, used as solvent for the addition of the antistatic agent to the supported catalyst, is considered to equate to the *inert hydrocarbon liquid* of the present invention (which it does not), there is no indication in Brinen as to the amount of toluene used with respect to the pore volume of the support.

Brinen (col. 6, lines 5-9) discloses that the antistatic compound may be added while the catalyst system is in a *free flowing state*. As there is no antistatic compound

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required in the present invention, this feature of Brinen is not relevant to the presently claimed invention.

Brinen provides no suggestion of the use of a supported catalyst without the presence of an antistatic agent and no suggestion of the contact of a supported polymerization catalyst in powder form with an inert hydrocarbon liquid in a quantity sufficient to maintain the catalyst in powder form and wherein the inert hydrocarbon liquid is present in amount up to about 10% of the pore volume of the support as required by the present claims. Specia fails to cure this deficiency. No *prima facie* case of obviousness is generated by the combined disclosures of Brinen and Specia.

With regard to the obviousness rejections of claim 25 in view of Brinen and Canich, claims 25 and 27 over Brinen in view of Stevens, and claims 26-28 over Brinen in view of Jacobsen, these claims define the transition metal compound and the activator component of the supported catalyst system. As these rejections are all based on Brinen, there is clearly no *prima facie* case of obviousness of the claimed invention for the above discussed reasons. Withdrawal of the obviousness rejections is accordingly respectfully requested.

II. WITHDRAWAL OF FINALITY

The outstanding Action cites new art (Brinen) for the first time in a final rejection. As Applicant has not had an opportunity to consider this new art in the context of a non-final rejection, it is requested that finality of the outstanding Action be withdrawn, and that should any further Action issue, that further Action might properly issue as a final rejection if the same art is again relied upon for rejection of the claims.

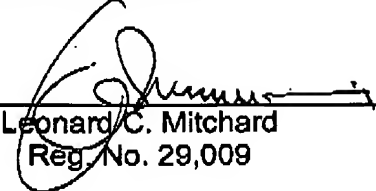
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Favorable action is awaited.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By:


Leonard C. Mitchard
Reg. No. 29,009

LCM:lff
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100